GDT™
GEOGRAPHIC
DATA TECHNOLOGY

USER MANUAL

Dynamap® Highways/Routing

version 3.3

2002

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PN:HwyRoute33

Introduction 1

In This Section:

- *What is Dynamap Highways/Routing?*
- *The GDT Master Street Database*

What is Dynamap Highways/Routing?

Dynamap Highways/Routing is a vector, digital center-line geographic database representing the highway network. The product is designed specifically for enhanced routing functionality. The data and the formatting of the data have been designed to meet the needs of customers looking for a functionally optimized highway routing database for use with GDT-based geocoding and/or display databases.

Features

COMPLETE
- Displays toll information
- Exit and city/populated locality points
- Nationwide highway network
- State boundary layer

VERSATILE
- Can be used for a variety of routing applications. Available in ArcInfo, ArcView and ASCII formats

SUPPORTED
- Comprehensive user documentation
- Toll-free customer support 9 am to 5 pm EST
- Online support request form

COMPLETE
- The Highway Layer is based on GDT's Master Street Database which is updated quarterly with over 3 million changes.

Geographic Coverage

Dynamap Highways/Routing is available for all 50 states, Puerto Rico, and the District of Columbia. It can be purchased by state tile.

Dynamap Highways/Routing is also available for Canada.

Layers

Dynamap Highways/Routing includes the following layers:

Layer	Abb.	Tile
Highway	hy	State / Province
Highway Alternate Name	ha	State
Toll	tl	State
Exit	ex	State
Turn Restriction	tn	State
Maneuver	mn	State
Populated Locality Inventory	pli	State
State Boundary	stb	Nation
Nation Boundary	ntb	World

Projection and Datum

Dynamap Highways/Routing files are delivered in a geographic projection using latitude/longitude coordinate values with an implied six decimals of precision.

All coordinates are based on the 1983 North American Datum (NAD83). The datum is specified in a file named DATUM.TXT.

NOTES:
Changing projection may slightly affect coordinate precision resulting in less than exact overlays in enlarged views.
Nation boundary coordinates are based on WGS 84 Datum.
Hawaii is in the Old Hawaiian Datum.

The GDT Master Street Database

The GDT internal street network database, on which this product is based, contains nearly every street in the U.S. and Canada, and nearly every street in major metropolitan areas of Brazil and Argentina, and is constantly being updated. As new streets are reported, they are added by Digital Map Technicians (DMTs) working in teams assigned to specific geographic areas covering an entire nation.

As DMTs work through their particular regions, they concentrate on areas that contain the largest numbers of missing addresses, usually newly developed areas. They apply address ranges to unaddressed street segments, digitize new streets and correct inaccurate segment shapes. They are also continually adding useful attributes to street segments such as exits, turn restrictions and one-way restrictions. Each addition is verified with current maps and other data. Changes made each day are checked for accuracy before being applied to the master database.

The above modifications are part of GDT's initiatives aimed at improving the overall quality and usability of the data used in this product.

FEATURE CLASSIFICATION

Feature classification codes (FCCs) in some databases are based on the maintenance of streets and roads and can vary dramatically in different geographic areas.

To create a consistent nationwide highway system, GDT re-classifies almost every street and road in the master street database based on its use rather than its maintenance.

Getting Started 2

In This Section:

- *What's In This Package*
- *Copyright File*

What's In This Package

In addition to this manual, you should receive:

- **Dynamap Highways/Routing v3.3 Files** which include:

  Dynamap Highways/Routing in the desired format.

- **Packing Slip** (a printed or electronic list of package contents)
- **Documentation CD**

Check now to be sure that you have received the correct order.

For information on the installation of these files see the GDT *Data Installation* manual included on your Documentation CD.

Copyright File

The copyright file included with this product is one of the following:

File name	1st character of extension:	2nd and 3rd characters of extension:
cpyright.txx	**t**=carriage return/line feed	**xx**=fillers
cpyright.lxx	**l**=line feed	**xx**=fillers
cpyright.xxx	**x**=no delimiter	**xx**=fillers
cpyright.txt	text file	

and contains the following text:

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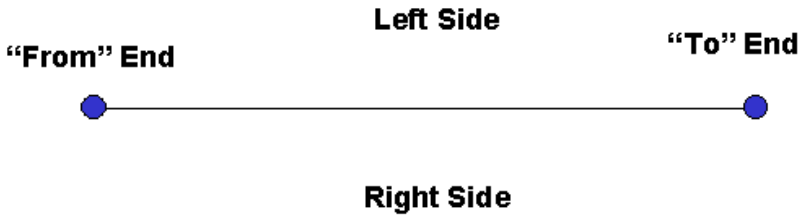
Record Content 3

In This Section:

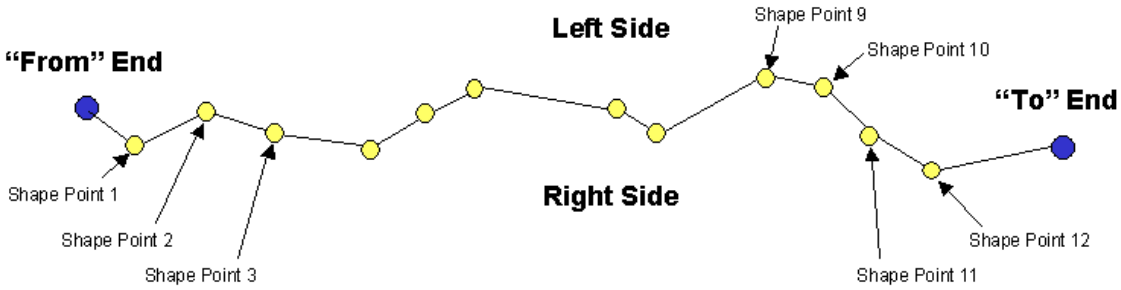
- *Linear Features*
- *Codes and Types*
- *Layer Specifics*

Linear Features

Linear features such as streets, highways and political or water boundaries are represented as line segments. Each segment has a "from" end, a "to" end, a left side and a right side. The "from" and "to" ends represent the digitized direction of the segments, not traffic flow direction.



A line segment can have shape nodes that indicate the position of intermediary points along that line.



Codes and Types

Feature Class Codes (FCC)

The Feature Class Code (FCC) field tells whether a segment is a street, highway, stream, etc. A complete FCC list used in Dynamap Highways/Routing appears in the *Appendix* section.

The FCC field is made up of an alpha character that defines the physical class of the feature and a numeric portion that further defines the subclass of the feature. A common feature class is "A40"; 'A' being the physical class of "ROAD"; and '40' being the qualifier of that class, "NEIGHBORHOOD ROAD".

Arterial Classification Code (ACC)

The set of Arterial Classification Codes (ACCs) is GDT's system for categorizing roads according to the level of travel mobility that they provide in the road network. Mobility refers to the volume of traffic that a stretch of road carries and the length of trip that it serves.

- Roads at the highest level of mobility (lowest ACC number) serve the greatest number of trips and the longest trips. High-mobility roads provide the lowest level of access to property.
- Descending through the table below, higher ACC numbers represent a decrease in relative importance to routing: a decrease in the number and length of routes using the road.

Valid ACC entries are "1", "2", or "3". See table below.

ACC	Geographic Significance	Routing Importance
1	North America / Continental Inter-state	Largest / Longest Highways Connect Major / Largest Cities "Coast-to-Coast" Origin to Destination Interstate Commerce / Travel Intrastate Commerce / Travel
2	Inter-Metropolitan Area	Long / Large Highways
		Beltways / Secondary Freeways
		Connect Major Cities
3	Intra-State	Medium Highways
	Intra-Metropolitan Area	US/State Highway Network
	Inter-Metropolitan Area	Connect Minor Cities
		Intrastate Commerce
		Recreational Travel

Layer Specifics

Highway

The Highway layer contains all segments with an Arterial Classification Code (ACC) of 1, 2, or 3. As a result, segments of any FCC are possible. All highway segments are in a single layer to permit routing.

Toll Table

Streets may require a toll to travel along them. A correspondence file is included to indicate toll segments. "Y" = yes, a toll is required. Streets and bridges are treated alike. To reduce file size, only segments that have toll attribution will be referenced. The Toll table references the SEGMENT_ID and can be joined to the Highway layer.

Note: when joining the Toll file to the Highway layer it is a many-to-one relationship due to the chained IDs in the Highway layer. See Node Removal for a description of chaining.

Turn Restrictions

OVERPASS/UNDERPASS (Z_LEV):

All segments contain node elevation (segment-end elevation) values to indicate planar connectivity. The default value is 0, but can range from -8 to 99 as needed.

Negative Z_lev values (except -9, which is reserved for alternate names), represent features which are underground. A feature at Z_lev=0 is on the surface of the Earth, whether or not it is under a manmade structure: i.e., a bridge spanning a river or street would have a Z_lev >=1.

MULTI-LEVEL:

Chains are duplicated as necessary to maintain traffic flow for each level. Node elevation values are used to distinguish each layer from the next. (Ex: I-93 entering Boston, bridges in San Francisco, San Diego, Los Angeles, etc.). These segments each have unique Segment_IDs, not equal to layers above or below them. This is represented by parallel segments with a separation of .00003 (30 micro degrees, approximately 10 feet.).

LEGAL (NO LEFT TURN, NO U-TURN, ETC.):

There is no turn restriction unless a maneuver entry indicates the segment sequence, in correct order. (Ex: In the typical traffic circle, 2 short ramps exit and enter for each street involved. A turn restriction will prevent turning from a given circle exit ramp to the associated entrance ramp.) The Turn Restriction file references the subset of the

Prohibited Maneuvers in the Maneuvers file such that they can be represented as isolated ordered pairs.

MAN_ID

The MAN_ID field is used to associate the Turn Restriction file records with the Maneuver file records. There is a one-to-many relationship between MAN_IDs in the Turn Restriction file and the Maneuver file due to the possibility of multiple-record maneuvers.

Maneuvers

The Maneuver file gives detailed information about ordered sequences of segments in GDT's Highways/Routing product. Currently it lists restricted maneuvers by referencing the segment IDs involved. All turn restrictions previously delivered in the Turn Restriction layer are now delivered as Prohibited Maneuvers as well as Turn Restrictions to support different routing systems.

MAN_ID

This ID is unique per maneuver.

SEQUENCE

A separate record gives the information for each maneuver. Sequence ascends only when multiple records are needed to reference additional Via IDs. Only if a maneuver involves more than 5 "via" IDs in addition to the FROM_ID and TO_ID will this be higher than "1".

MAN_TYPE

Indicates the maneuver type.

"P"= Prohibited

"R"= Right-of-way

FROM_ID

The Segment_ID of the segment being departed.

FROMID_END

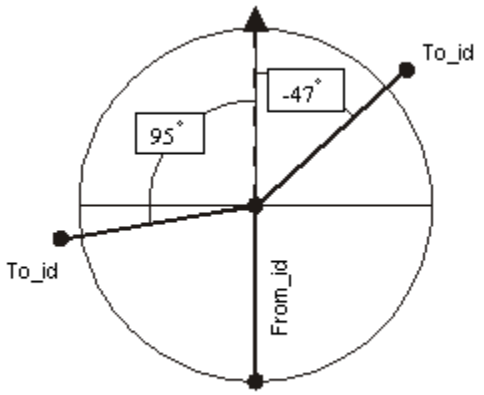
The end of the FROM_ID segment being departed, based on direction of digitization. All GDT segments are delivered with designated From and To ends. This is particularly important for U-turn indication, in order to know which end of a single-digitized segment has a U-turn restriction. If U-turns were restricted at both ends of a segment, two maneuver entries would be present.

"T" = To end

"F" = From end

ANGLE

The angle of the TO_ID segment from the FROM_ID segment. The angle measures the departure from straight per ESRI standards. This ranges in value from -179.99 to 180.00, and is the mathematical supplement to the interior angle of the two segments.. Negative values indicate right turns, while positive values indicate left tuns. U-turns generate a value of 180. 2 implied decimal places of precision.



Angle measures deviance from straight, right = 0° - -179°, left = 0° - 180°.

COST

Currently the value of this field will always be -1.00000 to indicate that the turn is restricted.

HOO (HOURS OF OPERATION)

The GDF Time Domain specifications will be used to indicate the time period during which this maneuver is allowed. Currently, there are no time-dependent turn restrictions included.

TO_ID

The SEGMENT_ID of the segment being accessed (or in this case the segment to which access is restricted). If this ID is the same as the FROM_ID, it refers to a U-turn. If it is a segment which is not adjacent to the FROM_ID segment, then there will always be additional segments listed in the Via section to connect the two.

VIA1-5

These IDs, in order, reference all segments involved in the maneuver. As a result, the complete maneuver would be: From_id, <VIA1>, <VIA2>,…, <VIAN>, TO_ID.

COORDINATES

If the maneuver may be represented as a turntable, i.e. if it involves a unique intersection of two adjacent segments at a node, then this point represents that node. If it cannot be represented as such, this represents the FROM_ID end node. Coordinate information is typically not necessary to use the maneuver file, as it defines relationships between other objects. This information is provided for easy examination of maneuver locations. Coordinates are displayed with six decimal places of precision.

Longitude

Longitude coordinate for the intersection / maneuver.

Latitude

Latitude coordinate for the intersection / maneuver.

One-ways

Status stored as a two character one-way field named ONE_WAY. "TF" = one-way in the To-From direction; "FT" indicates one-way in the From-To direction; blank indicates that travel is permitted in both directions.

Exits

Exits are stored as a point layer. EXIT_ID, FROM_NAME, EXIT (number), and TO_NAME are indicated. EXIT_ID is a nationwide unique ID. FROM_NAME contains the highway or highways being exited at an intersection. TO_NAME will be populated in a similar fashion, but will contain the street being exited to (not including ramps). Exit points will be located where the exit ramp leaves the limited access highway (Ex: In the simple case of a north-south diamond ramp network, there will be 2 exit points, located at the heads of the northbound and southbound exit ramps. In the more complex case of a 2-lane to 2-lane cloverleaf, there will be 8 exit points). Exit point generation and attribution will

combine new algorithmic methods (based on turn angles, FCC, and naming) with manual research and compiled data.

Ramps

Routing is possible via ramps, departing limited access highways at the exit point locations. Turn restriction placement supports this methodology.

ONE-WAYS:

All A63 ramps will have one-way attribution.

Populated Locality Inventory/"City Point"

This point layer consists of all Incorporated Places (current AND any in our Census 2000 Place Inventory), a subset of the GNIS Populated Place File localities requested by customers, and all State / Province capitals (including DC & PR).

Census Boundary/Inventory Files

This includes State files. State-tiled files are buffered.

FOR ASCII INVENTORY LAYOUTS:

Longitude and latitude fields are signed.

Longitude and latitude fields have an implied six places of precision.

FOR ALL DIME BOUNDARY FILE LAYOUTS:

The negative signs in longitude fields are implied.

All longitude and latitude fields have an implied six places of precision.

Nation Boundary

The Nation Boundary layer is derived from the *National Imagery and Mapping Agency (NIMA).* This layer is stored in the WGS84 datum.

Feature Class Coding:

If a ramp connects to a limited access highway, then the FCC will be set to A63. If a ramp does not connect to a limited access highway, the FCC will be set to A60. See Feature Class Codes on this Documentation CD.

General Naming:

PRIMARY NAME:

The primary name on all street segments is the Primary Routing Name (PRN). This is the name deemed by GDT as the highest in the name-ranking list. The ranking is as follows (from highest to lowest):

-"Highway" level name: from GDT's Primary Highway Name (PHN) name ranking

-Linked name: name found in USPS Zip + 4 delivery records.

-Other alternates using GDT's name ranking list

ALTERNATE NAMES:

Where applicable, Name_type, Shield, and Hwy_num will be stored for each. Alternates will be stored in order according to GDT's naming hierarchy (indicated by sort order AND/OR the Record Sequence Number depending on format). There will be up to 5 alternate names on each segment.

LIMITED ACCESS HIGHWAY NAMING:

The SUFFIX field is populated with "N", "S", "E", and "W" as appropriate to indicate the direction of the highways. Odd number = N/S and Even number = E/W.

RAMP NAMING:

The first segment at the head of each A63 ramp chain (with an exit point located at one end) has the name set to "Exit<sp>" + Exit number. The remaining segments of the ramp chain, and ramps where the exit number is unknown, are shown as " " (blank).

SHIELD:

The Shield field indicates what shield should be used to represent each name based on its Primary Highway Name. "T" = Trans-Canada, "I" = Interstate, "U" = US Hwy, "S" = State Hwy, "A" = Autoroute and blank = other.

HIGHWAY NUMBER:

The HWY_NUM field indicates which number should be placed within the shield for that highway. This is only present on Interstates, US Highways, State Highways, Trans-Canada Highways and Autoroutes. This may include a letter such as "25A". This will only be present on FCC segments of A1*, A2* and A3*.

NAVIGATIONAL DIRECTION:

The FT_Dir and TF_Dir fields convey information about the described direction of travel along roads. This directional is distinct from the existing directional suffix field in that it is not part of the recognized postal name. To accommodate single carriageway streets, two fields are used. Permissible values for this field are N,S,E,W,NE,SE,NW,SW.

NAME_FLAG

The Name_Flag provides additional information about the primary and alternate names along streets. This field can be used instead of the existing Name_Type field. The following information may be known about a given name:

- Routing – The name is most appropriate for statewide or cross-country directions
- Geocoding – The name is appropriate for geocoding applications
- Local – The name is most appropriate for local directions
- Historical – The name was once valid, but has been changed

The following table represents the number applied to each flag:

Name_Flag	Routing	Geocoding	Local	Historical
0	N	N	N	N
1	Y	N	N	N
2	N	Y	N	N
3	Y	Y	N	N
4	N	N	Y	N
5	Y	N	Y	N
6	N	Y	Y	N
7	Y	Y	Y	N
8	N	N	N	Y
9	Y	N	N	Y
10	N	Y	N	Y
11	Y	Y	N	Y
12	N	N	Y	Y
13	Y	N	Y	Y
14	N	Y	Y	Y
15	Y	Y	Y	Y

Limited Access Highway Representation:

Limited access highways are double-digitized nationwide. All limited access highway segments are one-way.

Node Removal (Chaining):

All valence 2 nodes on all streets not on a border have been changed to shape nodes, EXCEPT those necessary to indicate changes in the name, alternate names, or FCC. Higher valence nodes were also altered for Turn Restriction indication. Chains will not exceed 500 vertices.

Segment Length:

SEG_LEN field is populated based on the entire length of the segment chain (including shape nodes). Distance will be calculated using the arc distance with correction for the earth's curvature (length of the arc subscribed on a sphere with a radius of 6,370,997 meters or similar linear approximation). Units are in miles. Precision is 4 decimals.

Segment Speed Field:

The Segment SPEED field contains the average speeds categorized by FCC and defined in the *FCC Speed* table located in the Reference Document section on this CD. The units are in miles per hour with a precision of 0.

Segment Impedance:

Each segment has 2 fields named "FT_COST" and "TF_COST" which represent the cost to travel the segment in that direction in minutes. The values are based on the length of the segment and its speed value. If travel is impossible due to a one-way flag or FCC, these fields are set to –1. Units are in minutes. Precision is 5 decimal places. See *FCC Speed* table to view routable FCCs.

ArcInfo Format 4

In This Section:

- *Introduction*
- *Directories and Files*
- *Record Layouts*

Introduction

Versions Supported

Dynamap Highways/Routing 3.3 in Environmental Systems Research Institute (ESRI) ArcInfo format is designed for use with the following version of ArcInfo software:

ArcInfo 7.X and higher

Precision

ArcInfo format products are available in double precision. Precision refers to the number of bits (single - 32 bits, double - 64 bits) used to store coordinate data. Coverages in double precision are slightly more accurate, but larger than those in single precision.

Native Format

ArcInfo coverages are shipped in native format (unEXPORTed) ready for use, and do not need to be processed in any way. Native format ArcInfo coverages consist of the COVERAGE directory and an associated INFO directory.

Directories and Files

ArcInfo format Dynamap Highways/Routing comes in the following directory structure:

State-tiled data:

\ All world-tiled layers
- \info
  - datum.txt
  - cpyright.txt
  - ***nat***
    - All nation-tiled layers
    - datum.txt
    - dynaname.dbf (USA only)
    - **info**
    - ***st***
      - All state-tiled layers
      - genf<stfips>.txt
      - datum.txt
      - **info**

where: ***nat*** = 3-character ISO Nation abbr. (usa,can,arg,bra) ***st*** = 2-character State abbr.
x= filler

Record Layouts

Notes:

Grey field(s) indicate format-specific internal fields
Type: B=Binary; **C**= Character; **F**=Floating Point; **I**=Integer
Justify: **L**=Left; **R**=Right; **F**=Filled. Note that this only applies to character fields, and only when they contain data (Ex: the ONE_WAY field contains either "TF", "FT", or is blank.)
<cover># and <cover>-ID fields: "<cover>" represents the coverage name.
Canadian equivalents in Description fields: State=**Province** or **Territory**; County=**CD**; FIPS=**SGC**; Place=**UA**

LINEAR LAYERS:

Highway ***HY.AAT**

Item Name	Type	Width	Output	Dec.	Justify	Description
FNODE#	B	4	5			ArcInfo from node ID
TNODE#	B	4	5			ArcInfo to node ID
LPOLY#	B	4	5			ArcInfo left polygon ID
RPOLY#	B	4	5			ArcInfo right polygon ID
LENGTH	F	8	18	5		ArcInfo length
<cover>#	B	4	5			ArcInfo internal ID
<cover>-ID	B	4	5			ArcInfo user ID
SEGMENT_ID	B	4	10			Unique NorAm record number
PREFIX	C	2	2		L	Street prefix
NAME	C	40	40		L	Street name
TYPE	C	6	6		L	Street type
SUFFIX	C	2	2		L	Feature direction suffix
FCC	C	3	3		F	Feature Class Code
ACC	C	1	1		F	Arterial Classification Code
SHIELD	C	1	1		F	"T", "I", "U", "S", "A", or blank
HWY_NUM	C	5	5		L	#, # with letter, or blank
SEG_LEN	F	8	10	4		Segment length in miles
SPEED	I	3	3			Speed in miles per hour
ONE_WAY	C	2	2		F	One-way indicator
F_ZLEV	I	2	2			From node elevation
T_ZLEV	I	2	2			To node elevation
FT_COST	F	8	10	5		From-To Impedance in minutes
TF_COST	F	8	10	5		To-From Impedance in minutes
FT_DIR	C	2	2		L	From_To Direction
TF_DIR	C	2	2		L	To_From Direction
NAME_FLAG	I	3	3			Name metadata flag

Highway Alternate name: *ha.dat

Item Name	Type	Width	Output	Dec.	Justify	Description
SEGMENT_ID	B	4	10			Unique NorAm record number
SEQUENCE	I	1	1			Sequence number*
PREFIX	C	2	2		L	Street prefix
NAME	C	40	40		L	Street name
TYPE	C	6	6		L	Street type
SUFFIX	C	2	2		L	Feature direction suffix
SHIELD	C	1	1		F	"T", "I", "U", "S", "A", or blank
HWY_NUM	C	5	5		L	#, # with letter, or blank
FT_DIR	C	2	2		L	From_To Direction
TF_DIR	C	2	2		L	To_From Direction
NAME_FLAG	I	3	3			Name metadata flag

Sequence number: This number represents the number of alternate names a segment has. It will start at 1 and increase to the number of the last alternate name. For example, if the segment has five alternate names then the sequence number will be 1- 5 for that segment id.

Toll *tl.dat

Item Name	Type	Width	Output	Dec.	Justify	Description
DYNAMAP_ID	B	4	10			Unique NorAm record number
TOLL	C	1	1		F	"Y" = toll

Highway Turn Tables: *hy.trn

Item Name	Type	Width	Output	Dec.	Justify	Description
NODE#	B	4	5			
ARC1#	B	4	5			
ARC2#	B	4	5			
AZIMUTH	F	4	12	3		Azimuth
ANGLE	F	4	12	3		Turn Angle
ARC1-ID	B	4	10			From-arc User ID
ARC2-ID	B	4	10			To-arc User ID
COST	F	8	10	3		"-1" if turn is restricted
MAN_ID	B	4	10			Unique Permanent Maneuver ID

POINT LAYERS:

Maneuver: *mn.pat

Item Name	Type	Width	Output	Dec.	Justify	Description
AREA	F	8	18	5		ArcInfo area
PERIMITER	F	8	18	5		ArcInfo perimiter
<*cover*>#	B	4	5			ArcInfo internal ID
<*cover*>-ID	B	4	5			ArcInfo user ID
MAN_ID	B	4	10			Unique Permanent Maneuver ID
SEQUENCE	I	1	1			Sequence number of maneuver record
MAN_TYPE	C	1	1		F	Maneuver Type
FROM_ID	B	4	10			From Segment_ID
FROMID_END	C	1	1		F	"T" or "F" indicating end of From_ID
ANGLE	F	8	10	3		Turn angle from From_ID to To_ID
COST	F	8	10	5		Restricted = "-1"
HOO	C	100	100		R	Hours of Operation (GDF)
TO_ID	B	4	10			To/Destination Segment_ID
VIA1	B	4	10			Via Segment_ID 1
VIA2	B	4	10			Via Segment_ID 2
VIA3	B	4	10			Via Segment_ID 3
VIA4	B	4	10			Via Segment_ID 4
VIA5	B	4	10			Via Segment_ID 5
LONGITUDE	F	8	15	6		6 decimals of precision
LATITUDE	F	8	13	6		6 decimals of precision

Exit *ex.pat

Item Name	Type	Width	Output	Dec.	Justify	Description
AREA	F	8	18	5		ArcInfo Area (sq. dec.deg.)
PERIMETER	F	8	18	5		ArcInfo Perimeter (dec. deg.)
<*cover*>#	B	4	5			ArcInfo internal ID
<*cover*>-ID	B	4	5			ArcInfo user ID
EXIT_ID	B	4	10			Unique NorAm record number
FROM_NAME	C	40	40		L	Highway name exit leaves
EXIT	C	10	10		L	Number(s) if applicable
TO_NAME	C	40	40		L	Highway/street name exit accesses

Populated Locality Inventory <*st*>xx0pli.pat

Item Name	Type	Width	Output	Dec.	Justify	Description
AREA	F	8	18	5		ArcInfo Area (sq. dec.deg.)
PERIMETER	F	8	18	5		ArcInfo Perimeter (dec. deg.)
<*cover*>#	B	4	5			ArcInfo internal ID
<*cover*>-ID	B	4	5			ArcInfo user ID
NAME	C	40	40		L	City/Town name
KEY	C	10	10		L	State, County FIPS, Place code
CAPITAL	C	1	1		F	"Y" = State Capital (+DC & PR)
POPULATION	B	4	10			Population (if available)

POLYGON LAYERS:

No .AAT files will be present for polygonal layers.

State/Province Boundary <*nt*>xx0stb.pat

Item Name	Type	Width	Output	Dec.	Justify	Description
AREA	F	8	18	5		ArcInfo Area (sq. dec.deg.)
PERIMETER	F	8	18	5		ArcInfo Perimeter (dec. deg.)
<*cover*>#	B	4	5			ArcInfo internal ID
<*cover*>-ID	B	4	5			ArcInfo user ID
NAME	C	40	40		L	Full State or Province name
STATE	C	2	2		F	2-character State or Province abbr.
KEY	C	2	2		F	State FIPS or Province SGC code

State/Province Boundary <*nt*>xx0stb.patstb

Item Name	Type	Width	Output	Dec.	Justify	Description
AREA	F	8	18	5		ArcInfo Area (sq. dec.deg.)
PERIMETER	F	8	18	5		ArcInfo Perimeter (dec. deg.)
STB#	B	4	5			ArcInfo internal ID
STB-ID	B	4	5			ArcInfo user ID
NAME	C	40	40		L	Full State or Province name
STATE	C	2	2		F	2-character State or Province abbr.
KEY	C	2	2		F	State FIPS or Province SGC code

Nation Boundary: woxx0ntb. Patntb

Item Name	Type	Width	Output	Dec.	Justify	Description
AREA	F	8	18	5		ArcInfo Area (sq. dec.deg.)
PERIMETER	F	8	18	5		ArcInfo Perimeter (dec. deg.)
NTB#	B	4	5			ArcInfo internal ID
NTB-ID	B	4	5			ArcInfo user ID
NAME	C	50	50		L	Full Nation name
NATION	C	2	2		F	2- character Nation abbr.

ArcView Format 5

In This Section:

- *Introduction*
- *Directories and Files*
- *ArcView Portable APRs*
- *Indexes*
- *Record Layouts*

Introduction

Versions Supported

Environmental Systems Research Institute (ESRI) ArcView format Dynamap Highways/Routing is intended for the following software version:

ArcView 3.1 or higher

Directories and Files

ArcView format Dynamap Highways/Routing comes in a nationwide directory (USA) with state sub directories.

For a detailed explanation of the name correspondence files see the Auxiliary Files Section in this manual.

Each state directory has 2 project files (.apr) – one for PC users and one for Unix users.

Each layer has shape files (.shp), dBASE data files (.dbf), ArcView index files (.sbn), and legend files (.avl).

Below is a chart showing ArcView format directories, files and layer identifiers.

State-tiled data:

\ World-tiled layer
- datum.txt
- cpyright.txt
- ***nat***
  - All nation-tiled layers
  - dynaname.dbf (USA only)
  - datum.txt
  - ***st***
    - All state-tiled layers
    - datum.txt
    - genf<stfips>.txt
    - stxxxxpc.apr
    - stxxxxux.apr
    - **\stxxxxhy.nws**

where: ***nat*** = 3-character ISO Nation abbr. (usa,can,arg,bra) ***st*** = 2-character State abbr. **x=** filler

ArcView Portable APRs

The .apr files will load all data files automatically as long as the .apr file remains in the same relative directory position to the data as shipped. If the .apr is moved to a different location relative to the data, it will not be able to find the data and will prompt the user to locate all data.

For example, in the following state-tiled data directory structure, opening either the stxxxxpc.apr or stxxxxux.apr will properly automatically load all data files.

State-tiled data:

\ World-tiled layer
- datum.txt
- cpyright.txx
- ***nat***
  - All nation-tiled layers
  - dynaname.dbf (USA only)
  - datum.txt
  - ***st***
    - All state-tiled layers
    - datum.txt
    - genf<stfips>.txt
    - stxxxxpc.apr
    - stxxxxux.apr
    - **\stxxxxhy.nws**

Default Colors and Symbols

Theme (Lines)	Order	Abbr.	Symbol	Symbol #	Color
Highway	3	hy			
A1*			Solid	0	Red
A2*			Solid	0	Dk Blue
A3*			Solid	0	Dk Green
A4*			Solid	0	Dk Gray
A6*			Solid	0	Red

Theme (Points)	Order	Abbr.	Symbol	Color
Exit	4	ex	□	White
Populated Locality	5	pli	●	Black

Theme(Polygon)	Order	Abbr.	Fill Pattern	Fill Foreground	Outline Style	Outline Color
State Boundary	2	stb	1	Lt Yellow	Solid	Dk Gray
Nation Boundary	1	ntb	1	Lt Yellow	Solid	Dk Gray

Indexes

Spatial indexes are provided for all layers.

Record Layouts

Notes:

Grey field(s) indicate format-specific internal fields.
The Shape field is invisible in most views of the data.
Type: S= Shape; **C**= Character; **D**= Decimal
Index: Y= Yes, it is indexed; **N**= No, it is not indexed
Justify: L=Left; **R**=Right; **F**=Filled. Note that this only applies to character fields, and only when they contain data (Ex: the ONE_WAY field contains either "TF", "FT", or is blank.)
Canadian equivalents in Description fields: State=**Province** or **Territory**; County=**CD**; FIPS=**SGC**; Place=**UA**

LINEAR LAYERS:

Highway: *hy.*

Item Name	Type	Width	Index	Dec.	Justify	Description
SHAPE	S	9	Y			Spatial information storage
SEGMENT_ID	D	10	N	0	R	Unique NorAm record number
PREFIX	C	2	N		L	Street prefix
NAME	C	40	N		L	Street name
TYPE	C	6	N		L	Street type
SUFFIX	C	2	N		L	Feature direction suffix
FCC	C	3	N		F	Feature Class Code
ACC	C	1	N		F	Arterial Classification Code
SHIELD	C	1	N		F	"T", "I", "U", "S", "A", or blank
HWY_NUM	C	5	N		L	#, # with letter, or blank
SEG_LEN*	D	10	N	4	R	Segment length in miles
SPEED	D	3	N	0	R	Speed in miles per hour
ONE_WAY	C	2	N		F	One-way indicator
F_ZLEV	D	2	N	0		From node elevation
T_ZLEV	D	2	N	0		To node elevation
FT_COST	D	10	N	5	R	From-To impedance in minutes
TF_ COST	D	10	N	5	R	To-From impedance in minutes
FT_DIR	C	2	N	0	L	From-To direction
TF_DIR	C	2	N	0	L	To-From direction
NAME_FLAG	D	3	N	0		Name metadata flag

***** Alias to miles

Highway Alternate Name: *ha.dbf

Item Name	Type	Width	Index	Dec.	Justify	Description
SEGMENT_ID	D	10	N		R	Unique NorAm record number
SEQUENCE*	D	2	N		R	Sequence number*
PREFIX	C	2	N		L	Street prefix
NAME	C	40	N		L	Street name
TYPE	C	6	N		L	Street type
SUFFIX	C	2	N		L	Feature direction suffix
SHIELD	C	1	N		F	"T", "I", "U", "S", "A", or blank
HWY_NUM	C	5	N		L	#, # with letter, or blank
FT_DIR	C	2	N	0	L	From-To direction
TF_DIR	C	2	N	0	L	To-From direction
NAME_FLAG	D	3	N	0		Name metadata flag

***Sequence number:** This number represents the number of alternate names a segment has. It will start at 1 and increase to the number of the last alternate name. For example, if the segment has five alternate names then the sequence number will be 1- 5 for that segment id.

Toll: *tl.dbf

Item Name	Type	Width	Index	Dec.	Justify	Description
DYNAMAP_ID	D	10	10		R	Unique NorAm record number
TOLL	C	1			F	"Y" = toll

Turn Table: *tn.dbf

Item Name	Type	Width	Index	Dec.	Justify	Description
JUNCTION	D	11	N			Node ID number
F_EDGE	D	11	N			From-seg ID number
T_EDGE	D	11	N			To-seg ID number
AZIMUTH	D	12	N	3		Azimuth
ANGLE	D	12	N	3		Turn Angle
FROM_ID	D	11	N			From Segment _ID
TO_ID	D	11	N			To Segment _ID
COST	D	11	N			Always set to "-1"
MAN_ID	D	11	N			Unique Permanent Maneuver ID

POINT LAYERS:

Maneuver: *mn.*

Item Name	Type	Width	Index	Dec.	Justify	Description
SHAPE	S	6	Y			Spatial information storage
MAN_ID	D	10	N		R	Unique Permanent Maneuver ID
SEQUENCE	D	2	N		F	Sequence # of maneuver record
MAN_TYPE	C	1	N		F	Maneuver Type
FROM_ID	D	10	N		R	From Segment _ID
FROMID_END	C	1	N		F	"T" or "F" indicating end of From_ID
ANGLE	D	10	N	2	R	Turn angle from From_ID to To_ID
COST	D	10	N	5	R	Restricted = "-1"
HOO	C	100	N		R	Hours of Operation (GDF)
TO_ID	D	10	N		R	To/Destination Segment _ID
VIA1	D	10	N		R	Via Segment _ID 1
VIA2	D	10	N		R	Via Segment _ID 2
VIA3	D	10	N		R	Via Segment _ID 3
VIA4	D	10	N		R	Via Segment _ID 4
VIA5	D	10	N		R	Via Segment _ID 5
LONGITUDE	D	15	N	6	R	6 decimals of precision, signed
LATITUDE	D	13	N	6	R	6 decimals of precision, signed

Exit: *ex.*

Item Name	Type	Width	Index	Dec.	Justify	Description
SHAPE	S	6	Y			Spatial information storage
EXIT_ID	D	10	N	0	R	Unique NorAm record number
FROM_NAME	C	40	N		L	Highway name exit leaves
EXIT	C	10	N		R	Number(s) if applicable
TO_NAME	C	40	N		L	Highway/street name exit accesses

Populated Locality Inventory: <st>xx0pli.*

Item Name	Type	Width	Index	Dec.	Justify	Description
SHAPE	S	6	Y			Spatial information storage
NAME	C	40	N		L	City/Town name
KEY	C	10	N		L	State, County FIPS, Place code
CAPITAL	C	1	N		F	"Y" = State Capital (+DC & PR)
POPULATION	D	10	N	0	R	Population (if available)

POLYGON LAYERS:

State/Province Boundary: <nt>xx0stb.*

Item Name	Type	Width	Index	Dec.	Justify	Description
SHAPE	S	8	Y			Spatial information storage
NAME	C	40	N		L	Full State or Province name
STATE	C	2	N		F	2-character State or Province abbr.
KEY	C	2	N		F	State FIPS or Province SGC code

Nation Boundary: woxx0ntb.*

Item Name	Type	Width	Output	Dec.	Justify	Description
SHAPE	S	8	Y			Spatial information storage
NAME	C	50	50		L	Full Nation name
NATION	C	2	2		F	2 character Nation abbr.

ASCII Format 6

In This Section:

- *Introduction*
- *Directories and File*
- *File Namings*
- *Primary Layers*
- *Additional Layers*
- *Auxiliary Files*
- *Record Layouts*

Introduction

GDT's ASCII format is based on the TIGER format developed by the U.S. Census Bureau. See the Primary Layers portion of this section for a description of the ASCII format.

> **Note:**
> Type 1 and Type4 records are a GDT format and differ from the standard TIGER layouts.

Directories and Files

State-tiled data:

\ All world-tiled layers
- datum.txt
- cpyright.txt
- ***nat***
  - All nation-tiled layers
  - dynaname.txx (USA only)
  - datum.txt
  - ***st***
    - All state-tiled layers
    - genf<stfips>.txt
    - datum.txt

where: ***nat*** = 3-character ISO Nation abbr. (usa,can,arg,bra) ***st*** = 2-character State abbr.
x= filler

File Naming

Nation, State Tiled Layers (Tile= "N, S")

World-tiled data:

wo*xx#lll.ext*

xx filler
\# Generalization (0-3, where 0 = no generalization)
lll Layer abbreviation
ext MID and MIF

Nation-tiled data:

ntxxxxll.dx#

State-tiled data:

stxxxxll.dx#

Nation-tiled only Layers

*nt***xx#*lll.dvn***

nt 2 character ISO nation abb. (us = United States; ca = Canada)
xx filler
\# Generalization (0-3, where 0 = no generalization)
lll Layer abbreviation
d Delimiter
l LF
t CRLF
x None
vn Version Number

State-tiled only Layers

stxx#lll.dvn

st 2 character state abbreviation
xx filler
\# Generalization (0-3, where 0 = no generalization)
lll Layer abbreviation
d Delimiter
l LF
t CRLF
x None
vn Version Number

Copyright File

cpyright.*txt*

Delimiter
l LF
t CRLF
x None
xx Filler

Dynaname File

dynaname.*dxx*

d Delimiter
l LF
t CRLF
x None
xx Filler

Primary Layers

Record ID

With the following exceptions, all Primary layer records have identification codes (IDs) that are unique nationwide.

State border segments are duplicated in the two neighboring states (state tiling).

Record Types

The highway layer may contain Type 1, 2, 4 and 5 records:

Type 1:	Segments	**Type 2:**	Shape list
Type 4:	Alt Name Pts	**Type 5:**	Alternate names

Dynamap Highways/Routing includes only the *alternate* feature names in Type 5 Records. This eliminates some duplication, results in a smaller file size, and should have no adverse affects on algorithms searching for alternate feature names.

Record Type Relationships

Record Types 1, 2, 4 and 5 are linked by use of a unique ID field. For the street layer this ID is the SEGMENT_ID. Type 2 and 4 records that have the same SEGMENT_ID as found in a Record Type 1 record represent corresponding information for that segment. Some Type 1 records have more than one corresponding record in the Type 2 and/or Type 4 file.

GDT TYPE 1 RECORDS contain street or line segments defined by “from” and “to” nodes.

The highways layer will contain GDT Record Type 1 file, if information is present for that file. This is a GDT file format, different from the standard TIGER Type 1 file, but similar in usage. Note that the first record in the Type 1 file will be a copyright record.

TYPE 2 RECORDS with the same SEGMENT_ID as found in Record Type 1 are shape coordinates for line segments defined in Record Type 1. There may be many Type 2 records for a single Type 1 record. A single shape record contains coordinates for up to 10 shape points for a segment record. If additional shape points are needed to describe a line, as many more Type 2 records are used as are needed. If a shape record has less than 10 shape points the unused coordinate value fields are filled out with zeros. Since it is imperative to apply the coordinate information in Type 2 records in sequence order, each is given a Record Sequence Number (RTSQ). The first coordinate for the segment is the "from" node (from Record Type 1), followed by shape point 1, shape point 2, etc., ending with the "to" node (to Record Type 1).

Notes:

The shape list is a series of latitude/longitude coordinate values that add form to a straight line. Shape records are not included for every line segment, and line segments may refer to several shape records.

Shape records are not required in order to show segments on a map display, but they add identity to features. Generally the exclusion of shape records in a display speeds up the drawing time at the expense of a less visually pleasing and precise map.

If you draw without shapes you may get crossing lines.
Coordinate values have six implied decimal places and are preceded with a "+" for latitude and "–" for longitude.

GDT TYPE 4 RECORDS list alternate name pointers for each SEGMENT_ID from the Record Type 1 file(s). Any matching Type 4 record found contains an alternate feature number and a sequence number

(RTSQ). Additional records may be present indicated by the same SEGMENT_ID number and a different sequence number.

The feature numbers listed in this file are used to find the additional names for the segment. The name appearing in Record Type 1 is the Primary Routing Name, the name most suitable for routing based on GDT's naming hierarchy; any other feature names for a segment will be in the alternate name list. A line segment may have more than one name and also more than one alternate name. For example: Record Type 1 may have the name "MAIN ST" as the primary name for a segment, and may also point to alternates listed in Record Type 4. Two Record Type 4 records list two alternate feature numbers for that segment. The names matching those feature numbers are found in Record Type 5, "4TH ST" and "ST HWY 101". There may be one alternate, many alternates or none. If a zero is listed as an alternate feature number, the number should be ignored. This is a GDT file format, different from the standard TIGER Type 4 file, but similar in usage. Note that GDT stores shield type and content type information in the Type 4 record, as well as navigational direction and name metadata flags.

TYPE 5 RECORDS list alternate names. Primary names appear in Record Type 1 while names for any feature numbers listed in Record Type 4 are found in Record Type 5. The NAME_ID from Record Type 4 is used to find a record in Record Type 5 that has the same NAME_ID. Once found, that record contains the direction prefix, alternate name, street type, and direction suffix.

NOTES:

There is an important difference between TIGER and GDT format in the Alternate Feature Name List. TIGER lists all the unique feature names for a county in Record Type 5. Dynamap lists only those feature names that appear in the Alternate Feature Name Index.

Field Terms

RT - a one character field to show Record type.

VERSION - four character internal GDT code representing year and month of database currency.

SEGMENT_ID - GDT unique record number.

RTSQ - Record Sequence Number field used when a segment has more than one Record Type 2 or 4. For example, there is an additional Record Type 2 (RTSQ 2) if a segment has more than ten shape points. If it has more than 20 shape points another Record Type 2 (RTSQ 3) is required. An additional Record Type 4 (RTSQ 2) is required if a segment has more than 1 alternate name. There may be as many additional Records as a segment requires identified in order by the Record Sequence Number.

OTHER FIELD TERMS - For additional field term explanations see the Record Type Descriptions in the Record Layouts section.

Additional Layers

Nation Boundaries

Unlike the other ASCII polygon layers, Nation Boundaries are stored in MIF format. This includes a MIF file and a MID file.

MIF FILE

Header

Lists exact field definitions of MID file (i.e. the polygon attributes) and defines projection / datum parameters. Also specifies the field delimiter for the MID file. This is not a fixed field length file.

Data/Body

Lists coordinates of the perimeter of each polygon. Polygons correspond to each entry in the MID file. This is not a fixed field length file.

MID FILE

An ASCII delimited file, using the delimiter specified in the MIF file header. All records correspond with the object geometry detailed in the MIF file.

State Layers

In these layers each DIME format **boundary file** record represents one straight line segment with a logical record length of 64 characters plus delimiter.

Water features that are in nationwide files, and areas outside of coverage use state code 00. In state files, state code is <FIPS>. Longitude and latitude have 6 implied decimal places. For example: 33125684 = 33.125684.

Auxiliary Files

The following auxiliary files are included:

dynaname.txt	Name Correspondence file.
cpyright.txt	Copyright file
datum.txt	Datum specification file
genf<stfips>.txt	Geographic Entity Name File

Record Layouts

NOTES:

Depending on your operating system, your files may not have carriage return/line feeds. For example, UNIX users will have only line feeds. Check your File Listing for the delimiter that is used for your operating system.

Type: C = character.

Justify: l - left, **r** - right, and **f** - filled.

Fill: sp - space, and **zero** - 0

ASCII files in this product end with a carriage return/line feed.

Canadian equivalents in Description fields: State=**Province** or **Territory**; County=**CD**; FIPS=**SGC**; Place=**UA**

GDT Record Type 1: Primary Data Record *.tx1

Field	Size	Type	Justify	Fill	Description
RT	1	C	f		Record Type (Value "1")
VERSION	4	C	f		Version Number
SEGMENT_ID	10	C	r	sp	GDT Record Number
FEDIRP	2	C	l	sp	Feature Direction, Prefix
FENAME	30	C	l	sp	Feature Name
FETYP	6	C	l	sp	Feature Type
FEDIRS	2	C	l	sp	Feature Direction Suffix
FCC	3	C	f	sp	Feature Class Code
FRLONG	10	C	r	sp	Longitude From (leading –, implied 6 decimal places)
FRLAT	9	C	r	sp	Latitude From (leading +, implied 6 decimal places)
TOLONG	10	C	r	sp	Longitude To (leading –, implied 6 decimal places)
TOLAT	9	C	r	sp	Latitude To (leading +, implied 6 decimal places)
ACC	1	C	f	sp	Arterial Classification Code
SHIELD	1	C	f	sp	“T”, “I”, “U”, “S”, “A”, or blank
HWY_NUM	5	C	r	sp	#, # with letter, or blank (if SHIELD_TYPE is filled)
LENGTH	8	C	r	sp	seg length in miles, (implied 4 decimal places)
SPEED	3	C	r	sp	speed in mph (US)
ONE_WAY	2	C	f	sp	"FT", "TF", or ""
F_ZLEV	2	C	r	sp	functional From segment-end elevation
T_ZLEV	2	C	r	sp	functional To segment-end elevation
FT_COST	8	C	r	zero	from-to travel time (minutes, implied 5 decimal places)
TF_COST	8	C	r	zero	to-from travel time (minutes, implied 5 decimal places)
FT_DIR	2	C	l	sp	From-To direction
TF_DIR	2	C	l	sp	To-From direction
NAME_FLAG	3	C	r	sp	Name metadata flag

Record Type 2: Shape Coordinate List *.tx2

Field	Size	Type	Justify	Fill	Description
RT	1	C	f		Record Type (value "2")
VERSION	4	C	f		GDT Version Number
SEGMENT_ID	10	C	r	sp	GDT Record Number
RTSQ	3	C	r	sp	Record Sequence Number
LONG1	10	C	r	sp	Point 1, Longitude (-)
LAT1	9	C	r	sp	Point 1, Latitude (+)
LONG2	10	C	r	sp	Point 2, Longitude (-)
LAT2	9	C	r	sp	Point 2, Latitude (+)
			ETC.		
LONG10	10	C	r	sp	Point 10, Longitude (-)
LAT10	9	C	f	sp	Point 10, Latitude (+)

GDT Record Type 4: Alternate Feature Name Index *.tx4

Field	Size	Type	Justify	Fill	Description
RT	1	C	f		Record Type (value "4")
VERSION	4	C	f		GDT Version Number
SEGMENT_ID	10	C	r	sp	GDT nationwide unique segment ID
RTSQ	3	C	r	sp	Record Sequence Number
NAME_ID	8	C	r	sp	Alternate Feature Name ID
SHIELD_TYPE	1	C	f	sp	"T", "I", "U", "S", "A", or blank
HWY_NUM	5	C	r	sp	#, # with letter, or blank
FT_DIR	2	C	l	sp	From-To direction
TF_DIR	2	C	l	sp	To-From direction
NAME_FLAG	3	C	r	sp	Name metadata flag

Record Type 5: Alternate Feature Name List *.tx5

Field	Size	Type	Justify	Fill	Description
RT	1	C	f		Record Type (value "5")
STATE	2	C	f	zero	FIPS State Code for File
COUNTY	3	C	f	zero	FIPS County Code for File
NAME_ID	8	C	r	sp	Alternate Feature Name ID
FEDIRP	2	C	l	sp	Feature Direction, Prefix
FENAME	30	C	l	sp	Feature Name
FETYP	6	C	l	sp	Street Type
FEDIRS	2	C	l	sp	Feature Direction, Suffix

Exit File: *ex.txx

Field	Size	Type	Justify	Fill	Description
STATE	2	C	f	sp	state FIPS code
COUNTY	3	C	f	sp	county FIPS code
EXIT ID	10	C	r	sp	GDT nationwide unique exit ID
FROM NAME	40	C	l	sp	highway name exit leaves
EXIT NUMBER	10	C	l	sp	number if applicable
TO NAME	40	C	l	sp	highway/street name exit accesses
LONGITUDE	10	C	r	sp	latitude (implied 6 decimal degrees) signed
LATITUDE	9	C	r	sp	longitude (implied 6 decimal degrees) signed

Toll File: *tl.txx

Field	Size	Type	Justify	Fill	Description
SEGMENT_ID	10	C	r	sp	Segment ID for first segment
TOLL	1	C	f	sp	"Y" = toll

Turn Restrictions File: *tn.txx

Field	Size	Type	Justify	Fill	Description
ANGLE	12	C	r	sp	Implied 3 decimal places
FROM_ID	10	C	r	sp	Dynamap ID for first segment
TO_ID	10	C	r	sp	Dynamap ID for second segment
COST	8	C	r	sp	"-0100000" if turn is restricted
MAN_ID	10	C	r	sp	Unique Permanent Maneuver ID
LONGITUDE	10	C	r	sp	Longitude (implied 6 decimal places) signed
LATITUDE	9	C	r	sp	Latitude (implied 6 decimal places) signed

Maneuver: *mn.txx

Field	Size	Type	Justify	Fill	Description
MAN_ID	10	C	r	sp	Unique Permanent Maneuver ID
SEQUENCE	1	C	f	sp	Sequence # of maneuver record
MAN_TYPE	1	C	f	sp	Maneuver Type
FROM_ID	10	C	r	sp	From Dynamap_ID
FROMID_END	1	C	f	sp	"T" or "F" indicating end of From_ID
ANGLE	6	C	r	sp	Turn angle from From_ID to To_ID 2 implied decimal places
COST	8	C	f	sp	Restricted = "-0100000"
HOO	100	C	r	sp	Hours of Operation (GDF)
TO_ID	10	C	r	sp	To/Destination Dynamap_ID
VIA1	10	C	r	sp	Via Dynamap_ID 1
VIA2	10	C	r	sp	Via Dynamap_ID 2
VIA3	10	C	r	sp	Via Dynamap_ID 3
VIA4	10	C	r	sp	Via Dynamap_ID 4
VIA5	10	C	r	sp	Via Dynamap_ID 5
LONGITUDE	11	C	r	sp	Longitude (signed with decimal pt)
LATITUDE	10	C	f	sp	Latitude (unsigned with decimal pt)

Populated Locality Inventory File: <*st*>xx0pli.tvn (Note: .t'vn' = version number)

Field	Size	Type	Justify	Fill	Description
NAME	40	C	l		Cleaned name
KEY	10	C	l	sp	State, County FIPS, Place code
CAPITAL	1	C	f	sp	"Y" = State Capital (inc. DC & PR), "N" not.
POPULATION	10	C	r	sp	Population (if available)
LONGITUDE	11	C	r	sp	Longitude (implied 6 decimal places, signed)
LATITUDE	10	C	r		Latitude (implied 6 decimal places, signed)

State Dime File Record Layout: <*nt*>xx0stb.txx

Field	Size	Type	Notes
LEFT STATE FIPS CODE	2	C	State FIPS/Province SGC code Left
BLANKS	13	C	
RIGHT STATE FIPS CODE	2	C	State FIPS/Province SGC code Right
BLANKS	13	C	
FROM LATITUDE	8	C	Implied 6 decimal places, unsigned
FROM LONGITUDE	9	C	Implied 6 decimal places, unsigned
TO LATITUDE	8	C	Implied 6 decimal places, unsigned
TO LONGITUDE	9	C	Implied 6 decimal places, unsigned

Nation MID File Record Layout: woxx0ntb.*

Field	Size	Decimal	Type	Justify	Description
NATION NAME	50	-	C	l	Nation Name
NATION ABBR.	2	-	C	f	Nation Abbreviation

Auxiliary Files 7

In This Section:

- *Name Correspondence File*
- *Geographic Entity Name File (GENF)*

Name Correspondence File - USA Only

The Name Correspondence file (**dynaname.dbf** or **dynaname.txt**) provides a quick reference to relate state and county abbreviations and FIPS codes to county names. File layout is shown below.

Field	Width	Type	Description
STATE	2	C	State abbreviation
COUNTY	20	C	County name
FIPS	5	C	State and county FIPS
DYNA_NAME	6	C	State abbreviation and first four letters of county name

Geographic Entity Name File (GENF)

See Geographic Entity Name File on this Documentation CD.

If You Need Help 8

In This Section:

- *If You Need Help*

If You Need Help

Correction Policy

Our geographic data files are made as accurately as possible. If you find a problem, please contact us.

All corrections and problems are noted and examined as soon as possible. GDT makes every attempt to include any new information in the next product update.

Customer Support

If you have any questions about the files you have purchased, or are having difficulties with them, please call the GDT Customer Support Help Line at:

1-800-331-7881 or 1-603-643-0330

or contact us through the Internet at:

http://www.geographic.com/support/supform.cfm

Hours are Monday through Friday from 9:00 a.m. to 5:00 p.m., Eastern Standard Time.

Please have the following information available when you call:

- The product name and version number
- The format you received (for example, ArcInfo)
- The GDT Order Number (on the Packing Slip).

Contact Information:

Customer Support
Geographic Data Technology, Inc.
11 Lafayette Street
Lebanon, NH 03766-1445

Phone: 1-800-331-7881 or 1-603-643-0330
Fax: 1-603-643-6808
e-mail: support@gdt1.com

Appendices 9

In This Section:

- *Appendix A: Dynamap File Codes*
- *Reference Documentation*

Appendix A: Dynamap File Codes

The following codes appear in the Dynamap product line.

SOURCE CODES

The original digital source of the line segment, such as a Census Bureau 1980 GBF / DIME-File or a USGS 1:100,000-scale DLG-3 file.

Code	Description
(Blank)	Non documented
A	1980 GBF/DIME-File
B	USGS 1:100,000-Scale DLG-3 File
C	Other USGS Map
D	Census Bureau Pre-census Update
E	Census Bureau Enumerator Update
F	Census Bureau-Other Operations
G	Unconfirmed Local Official Updates

DIRECTION

Code	Description
(Blank)	No Directional
N	North, Norte, Nord
S	South, Sur, Sul, Sud
E	East, Este, Leste, Est
W	West, Oeste, Ouest, Occidental
NE	Northeast, Nordestal, Nordeste, Nord-est
NW	Northwest, Noroeste, Nord-ouest
SE	Southeast, Suroriental, Sudeste, Sud-est
SW	Southwest, Sudoeste, Sud-ouest

Reference Documentation

See GDT Transportation Reference Documentation on this Documentation CD for links to detailed information on:

- Abbreviations for Street Designators
- Dynamap Definitions and Statistics
- Feature Class Codes
- Hours of Operation (HOO)
- State and County FIPS Codes
- GDT Abbreviations - Canada
- Province and Territory SGC Codes and Abbreviations

… and more.